

A new genus and a new species of the family Paradoxosomatidae from Australia (Diplopoda, Polydesmida)

by

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In a paper, to be published in "Nova Guinea", I gave an outline of the classification of the species hitherto referred to *Akamptogonus* Attems, 1914, in which I pointed out that the species of this genus as conceived by ATTEMES in 1937 belong to no less than four quite unrelated generic categories.

One of these is the new genus established here for the reception of *Akamptogonus nigrovirgatus* (Carl) and a closely related new species.

Pogonosternum nov. gen.

Generic characters.

20 body segments. Pore formula normal. Segments weakly constricted; waist rather narrow, longitudinally ribbed. Metatergites without sculpture, hairless; transverse furrow present from the 5th segment onwards. Pleural keels absent.

Lateral keels weakly developed in the anterior segments, completely absent and indicated by furrows only from the 5th segment onwards. Keels of the 2nd segment below the level of those of the following segments.

Sternites with deep cross impressions, rather densely setiferous. Sternite of the 5th segment of the male with a broad lamellate process between the anterior legs. Posterior part of the sternite of the 5th segment, the entire sternite of the 6th segment and the anterior part of the sternite of the 8th segment of the male modified for the reception of the gonopods. First pair of legs of the male with a ventral femoral tubercle. At least the coxae of the anterior pair of legs of the 6th segment of the male provided with a ventro-distal conical protuberance. Ventral side of the legs rather densely setiferous. Tarsal and tibial brushes present in a number of legs of the male.

Coxae of gonopods rather robust. Prefemur short, the longitudinal axis transverse on the axis of the acropodite. Acropodite lacking a distinct articular subdivision. Femoral part long and rather slender, laterally distinctly demarcated from the prefemur. Femur ending distally in a short, triangular femoral process (see fig. 6; *f*). The part of the acropodite distad of the femur arises from the medio-anterior side of the distal end of the femur and curves very slightly in a posterior direction. It consists of a short basal process (*a*), a solenomerite (*k*) and two slender processes (*b* and *c*). Spermial channel running along the medio-anterior side of the femur, and distally curving slightly in a medio-posterior direction towards the base of the solenomerite. Solenomerite of moderate length; the end rather broad, with a fine filiform process.

Type-species.

Strongylosoma nigrovirgatum Carl, 1902

R e m a r k s.

It is clear now, that the opinion of BRÖLEMANN, who, in 1916, associated *nigrovirgatum* with *Antichiropus* Attems, 1911, was quite correct, and that this species has nothing to do with the type-species of *Akamptogonus*, *A. novarae* (Humbert & De Saussure).

Indeed, *Pogonosternum* quite evidently belongs to the Antichiropodini, one of the two major groups of genera which may be distinguished in the Paradoxosomatidae of the Australian continent. Besides *Antichiropus* this tribe embraces the following genera: *Aulacoporus* Verhoeff, 1924, *Mjoebergodesmus* Verhoeff, 1924, *Pseudostrongylosoma* Verhoeff, 1924, *Solaenodolichopus* Verhoeff, 1924, *Paraulacoporus* Verhoeff, 1928, *Walesoma* Verhoeff, 1928, and *Parwalesoma* Verhoeff, 1937, and possibly also the enigmatic genera *Australodesmus* Chamberlin, 1920, and *Notodesmus* Chamberlain, 1920. These genera may be distinguished from the other major tribe Australiosomatini in particular by the elongate and slender gonopod femur and the relatively strong development of the solenomerite.

In 1924, VERHOEFF drew attention to the peculiar evolutionary trends in the gonopods of the Australian Paradoxosomatidae. Among the Antichiropodini it is only in *Pseudostrongylosoma* that the tibiotarsus and the solenomerite, both arising from the end of the gonopod femur, are more or less "normally" developed. In the other genera the identification of the tibiotarsus is extremely difficult because several, usually comparatively small processes arise from near the base as well as from more distal places of the solenomerite.

As an explanation of this condition VERHOEFF advanced the theory that in these genera a basal fusion of tibiotarsus and solenomerite occurred. On that line of reasoning it became possible to designate as tibiotarsus a lappet or spine arising distad of the femoral end. The processes arising proximad of the base of this tibiotarsus were named femoral processes, those arising more distad were named parsolenomerites.

However, there is no reason to believe that the tibiotarsus is represented by but one single process in the Antichiropodini. As I pointed out briefly in 1956, in some of the genera belonging to the Australiosomatini, e.g. in the genus *Hoplattessara* Verhoeff, the tibiotarsus is split to the base into two lanceolate branches. This remarkable condition was not recognized by VERHOEFF and the result was a quite erroneous homologization of these branches. In fact, VERHOEFF reversed the identity of the gonopod processes and identified the femoral process as tibiotarsus and vice versa called femoral branches what actually are two tibiotarsal prongs.

Considering the undeniable close relationship between the Australiosomatini and the Antichiropodini, it seems not unlikely that in the Antichiropodini on account of a similar evolutionary trend, the tibiotarsus was split up into two or more branches. A further deformation may have had as a result that the bases of these branches became more or less disjunct from each other.

On the other hand, in the course of evolution small processes of the solenomerite may have appeared, as is apparently also the case in other paradoxosomatid groups, processes for which the term parsolenomerite of VERHOEFF seems appropriate.

Among the genera of the tribe Antichiropodini, *Pogonosternum* comes nearest to

Antichiropus Attems of which seven species have been described from South-West Australia. The close relationship between the two genera appears from the great similarity in their external morphology. Even the peculiar impression of the clypeal area occurring in both species of *Pogonosternum* apparently exists also in two species of *Antichiropus*, viz. *A. fossulifrons* Att. and *A. sulcatus* Att.

In the configuration of the gonopods there is also a great resemblance between *Pogonosternum* and *Antichiropus*, although the differences seem sufficient to justify a generic separation. To facilitate a comparison of the figures of the gonopods of the *Antichiropus* species published by ATTEMS in 1911 and 1937 with the gonopod drawings of the two species of *Pogonosternum* published here (fig. 6 and 7) the various processes of the gonopod telopodite thought to be homologous are indicated by the same lettering.

In *Antichiropus* there are either one, two or three branches arising near the distal end of the femoral part which are marked *a*, *b* and *c* in the drawings of ATTEMS. The species in which all three processes are present are *A. fossulifrons* and *A. sulcatus*, and these also in this respect come nearest to *Pogonosternum*, which has four branches.

There is only one process, marked *b*, springing from the medio-posterior side of the course of the spermal channel in *A. fossulifrons* and *sulcatus*. This condition is found also in *Pogonosternum* although *b* arises more distad here than in *Antichiropus*.

In both these species of *Antichiropus* there are two processes (*a* and *c*) springing from the latero-anterior side of the course of the spermal channel; the one marked *a* being a triangular process which arises more anteriorly than the lanceolate prong marked *c*. The arrangement of these processes is in agreement with the condition found in *Pogonosternum*.

The fourth process in *Pogonosternum*, marked *f*, arises proximad of all the others and its relation to the femoral part seems to indicate that it must be regarded as a femoral process. It is apparently absent in the species of *Antichiropus* and may serve as an important character distinguishing this genus from *Pogonosternum*.

The solenomerite in *Pogonosternum* (*k*) is notably shorter than that of any of the species of *Antichiropus*. The small filiform lappet near its distal end may be homologous with the similar lappet marked *d* in the drawings of ATTEMS.

Pogonosternum nigrovirgatum (Carl)

1902 *Strongylosoma nigrovirgatum* Carl, Rev. Suisse Zool. 10 : 567, pl. 10, fig. 1—2.

1914 *Akamptogonus nigrovirgatus*, Attems, Arch. Naturg. 80A (4): 223.

1937 *Akamptogonus nigrovirgatus*, Attems, Tierreich 68 : 254, fig. 316.

Distribution.

Previous record: Australia: Melbourne.

Material examined: Australia: probably Victoria, 24.X.1924 (Coll. CHARLES BARRETT, Mus. New York), 1 ♂.

Description.

Colour. — Clypeus and lateral parts of the head yellowish to pale castaneous. Frontal area and vertex dark castaneous; the vertex with a yellow spot behind the antennal sockets and a pale medio-posterior spot. Antennae dark castaneous, only slightly paler in the proximal joints; the tip (8th joint) whitish. Collum yellow, the lateral sides, except the margins, dark castaneous. Body segments yellow, a very narrow median stripe and a rather broad longitudinal band on each side above the level of the pores dark castaneous. The longitudinal bands are briefly interrupted at the posterior margin and in the waist of the segments. Legs pale brownish, the distal joints, in particular the tibiae and tarsi darker. Colour of the posterior portion of the body of the specimen studied faded.

Width. — 2.7 mm.

Head and antennae. — Labrum moderately emarginate, tridentate. Clypeus strongly, almost semicircularly impressed around the labral area. Lateral margins of the clypeus widely convex, a nick at the base of the labrum. Headplate moderately to dispersedly setiferous up to just above the level of the antennal sockets; hairs of moderate length. Antennal sockets separated by about one and a half times the diameter of a socket, or by three quarters of the length of the 2nd antennal joint. Vertex not demarcated from the frontal area, rather weakly convex. Sulcus weakly impressed, not reaching the upper level of the antennal sockets. Antennae of moderate length, moderately slender. Length of the joints slightly decreasing from the 2nd to the 6th joint, the 6th about three quarters of the 2nd. 6th joint slightly thicker than the others. Proximal joints moderately, the distal joints rather densely setiferous.

Collum. — (fig. 1) Subtrapezoidal in dorsal outline, hardly wider than the head. Anterior border nearly straight in the middle, weakly convex towards the sides, very weakly emarginate above the lateral edge. Posterior border straight in the middle, widely rounded towards the sides. Lateral edge rather narrowly rounded. Surface of collum smooth, hairless, weakly convex in the middle, more strongly so towards the sides. Marginal rim narrow, present only along the latero-anterior margin, very weakly raised at the lateral edge.

Body segments. — Prosomites dulled by a fine cellular structure. Waist dorsally narrow, somewhat wider towards the sides, dorsally and latero-dorsally distinctly ribbed. Metatergites smooth, with a few irregular wrinkles. Transverse furrow fine, sharply but not deeply impressed, running rather far laterad, present up to the 16th segment. Sides smooth, somewhat irregularly wrinkled in the anterior segments.

Lateral keels. — 2nd segment about as wide as the collum. Keels represented by narrow straight ridges (fig. 1). 3rd segment somewhat narrower than the 2nd, keels similar to those of the 2nd. 4th segment narrower than the 3rd or the 5th. The keels are low ridges, their dorsal furrow somewhat concave towards the upper side. Lateral keels of the 5th and subsequent segments indicated only by irregular furrows. Poriferous segments slightly swollen in the pore area. Pores situated at one third from the posterior margin of the metasomites.

Sternites and legs. — Sternites of middle segments about one and a half times longer than wide, with deep cross impressions. Near the bases of the legs the

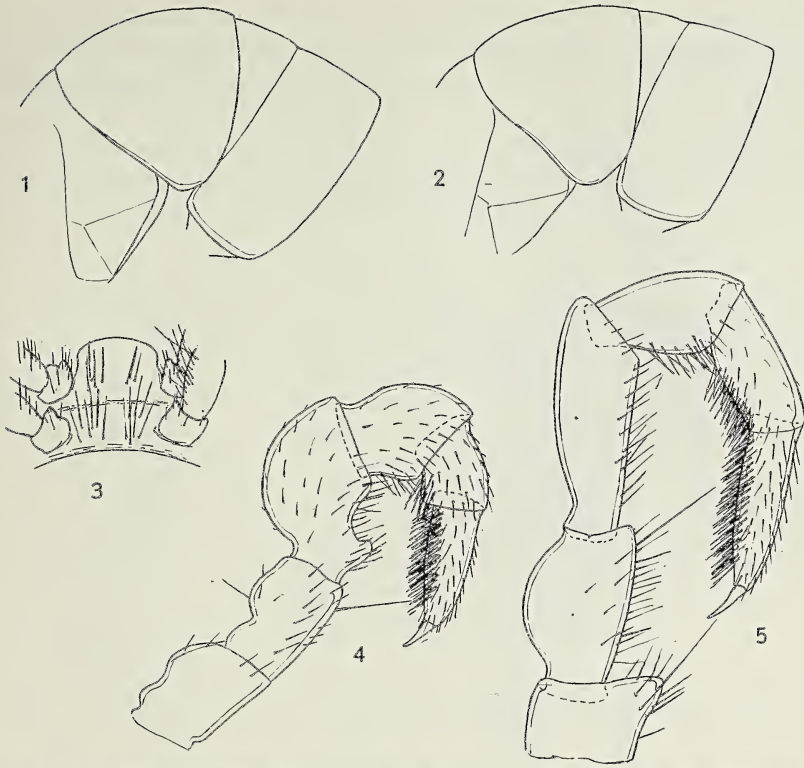


Fig. 1 & 3—5. *Pogonosternum nigrovirgatum* (Carl). — 1: collum and 2nd segment of ♂, left side. 3: sternite of 5th segment of ♂, ventro-posterior view. 4: first leg of ♂. 5: 6th leg of ♂. Fig. 2. *Pogonosternum coniferum* nov. spec. — collum and 2nd segment of holotype ♂, left side.

sternites are raised, but distinct cones are absent. Sternites rather densely set with rather long setae. Sternite of the 5th segment, as well as those of the 6th and 8th segments, not raised above the level of the ventral side of the metasomal ring. Sternite of the 5th segment with a wide transverse depression. Process between the anterior legs (fig. 3) widely rounded, directed ventrad, the anterior side densely set with short setae. Ventral part of the metasomite of the 5th segment with a wide transverse impression behind the sternite. Sternite of the 6th segment with, instead of a transverse furrow, a wide impression. Coxae of the legs of the 8th segment somewhat more widely separated than those of the subsequent segments. First pair of legs (fig. 4) incrassate, especially in the femur and postfemur. The other legs (fig. 5) of moderate length, their ventral side rather densely set with long hairs. Tarsal and distal tibial brushes present from the first to the 7th pair, abruptly absent from the 8th pair onwards. Coxae of the legs of the 5th segments with a small ventro-terminal tubercle. Coxae of the anterior pair of legs of the 6th segment with a strongly developed, distally rounded ventro-terminal cone; those of the posterior pair with a smaller cone. Coxae of the anterior pair of legs of the 8th segment slightly ventro-distally produced.

Anal segment. — Tail of moderate length, broad at the base. The sides of the tail somewhat concave at the base, rather strongly and straightly converging in the middle, and somewhat rounded near the end. The posterior margin of the tail

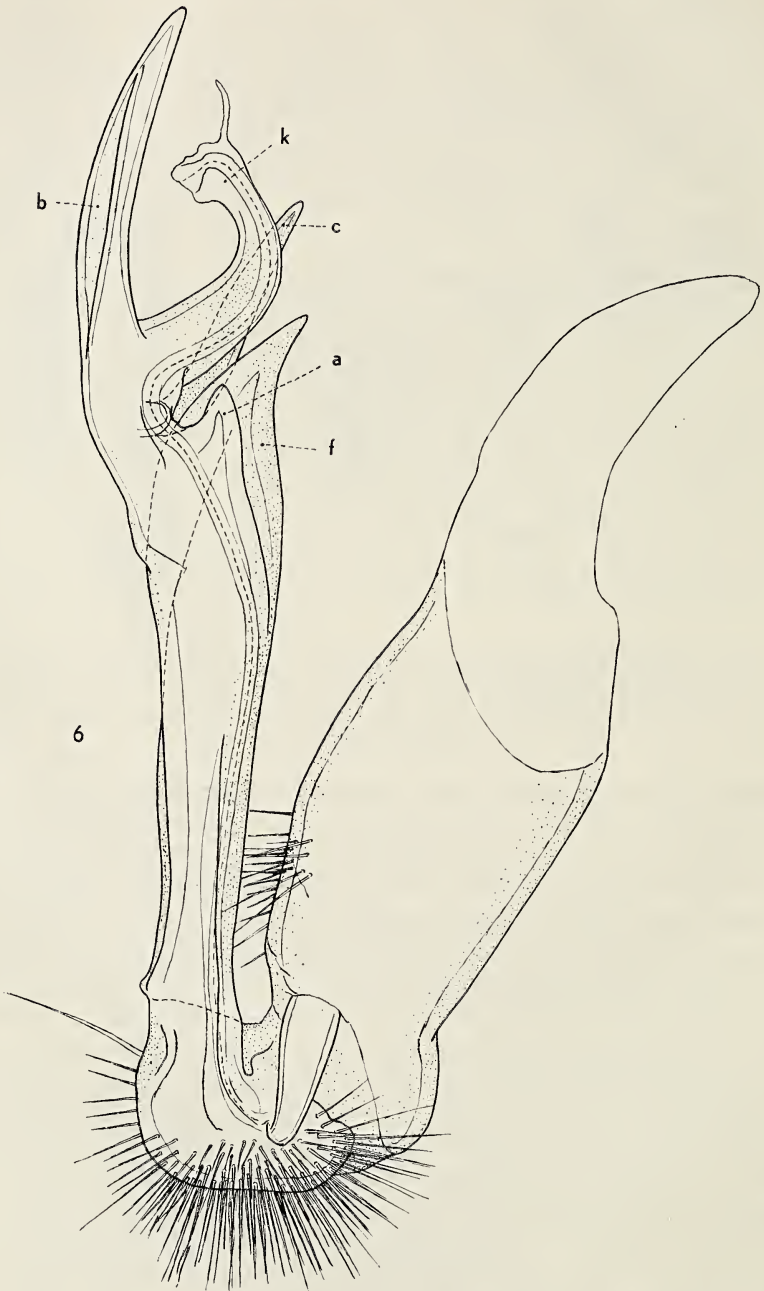


Fig. 6. *Pogonosternum nigrovirgatum* (Carl). — right gonopod of ♂, mesal view; *a*, *b* and *c*: tibiotarsal (?) processes of the acropodite; *f*: femoral process; *k*: solenomerite.

strongly emarginate. Ventral side of the tail weakly concave. Setae not on tubercles. Valves with rather narrow and rather low marginal rims. Scale subsemicircular, the setiferous tubercles minute, not projecting.

Gonopods. — (fig. 6) Coxae with an anterior bristle area. The distal end slightly produced posteriorly. Femoral process (*f*) triangular; processes *b* and *c* of about equal length, *b* directed straight distad. Solenomerite directed laterad at the base, curving distad and finally somewhat mesad.

Remarks.

On the whole the specimen studied is in agreement with the original description. The only discrepancy of importance is the statement by CARL that in the type pleural keels were present in the four anterior segments. In the present specimen no pleural keels were observed.

Attention should be drawn to the fact that CARL was in error drawing process *a* of the gonopod telopodite (marked 1' in his figures) on the lateral side in his fig. 2, instead of on the medial side as he did correctly in his fig. 1.

Pogonosternum coniferum nov. spec.

Distribution.

Material examined: Australia: exact locality unknown (Coll. CHARLES BARRETT, Mus. New York), 1 ♂ (holotype).

Description.

Differentiated from *nigrovirgatum* in the following characters:

Colour. — As a whole darker than in *nigrovirgatum*. Head castaneous, with the labral area paler. Antennae also castaneous, the tip pale. Collum castaneous; a median band, slightly constricted halfway, and the margins of the lateral sides yellowish. Body segments also castaneous, with a pair of continuous, rather broad, medially narrowly separated longitudinal bands of yellowish colour. Sides at the level of the pores in-

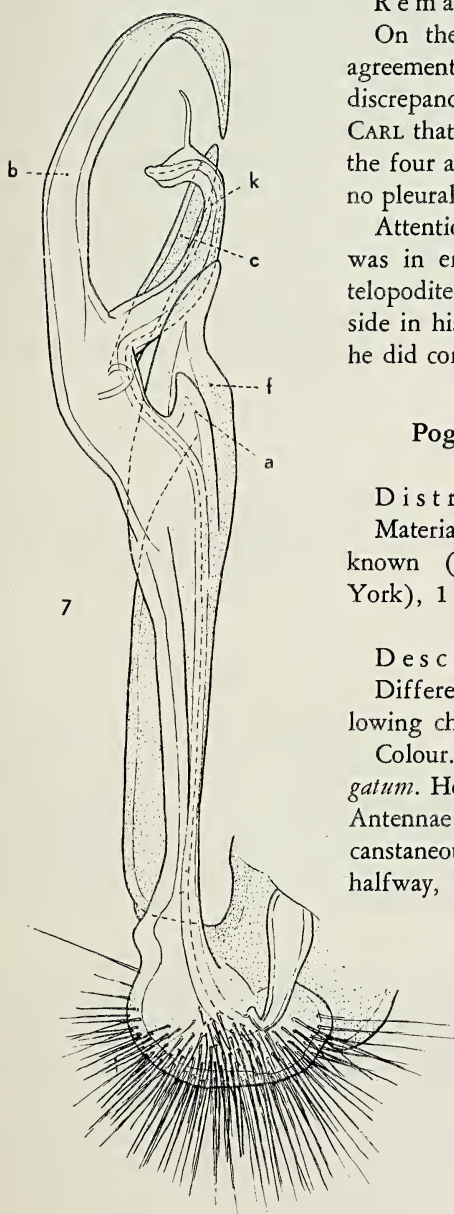


Fig. 7. *Pogonosternum coniferum* nov. spec. — telopodite of right gonopod of holotype ♂, mesal view; same lettering as fig. 6.

distinctly yellowish. Ventral part of the somites, the sternites and the legs pale castaneous. Tip of tarsi pale. Tail pale.

Width. — 2.3 mm.

Head and antennae. — Lateral sides of clypeus straight. Antennae comparatively somewhat longer than in *nigrovirgatum*.

Collum. — (fig. 2) Lateral sides somewhat more widely rounded.

Sternites and legs. — Sternites of middle segments somewhat longer than wide. At the base of each leg a strong cone pointing ventrad. Sternites rather densely setiferous, the hairs longer than in *nigrovirgatum*. Process of the sternite of the 5th segment distally a little wider than at the base. Sternite of the 6th segment not raised above the level of the metasomal ring between the posterior legs, but weakly convex between the anterior legs. Sternite of the 8th segment hardly prominent between the anterior legs and without cones there; widely concave between the posterior legs and with small cones. Transverse furrow present. Ventral setae of the legs longer than in *nigrovirgatum*. Tarsal and distal tibial brushes present up to the first pair of legs of the 8th segment, abruptly absent from the second pair of that segment onwards. Only the coxae of the legs of the first pair of the 6th segment with a rather strongly developed ventro-distal cone; other legs without cones.

Anal segment. — Posterior margin of tail weakly emarginate.

Gonopods. — (fig. 7) Process *b* of the telopodite about one and a half times as long as process *c*, curving laterad and finally proximad.

References

- ATTEMS, C., 1937. Polydesmoidea I. Fam. Strongylosomidae. *Tierreich* 68: i—xxii, 1—300.
 JEEKEL, C. A. W., 1956. On the generic status of *Strongylosoma luxuriosum* Silvestri 1894 from New Guinea (Diplopoda, Polydesmida, Strongylosomidae). *Ent. Ber.* 16: 184—188.

For further references see ATTEMS.

Panthea coenobita Esp. (Lep., Noct.). BOER LEFFEF schrijft in zijn artikel „Lepidopterologische notities” (*Ent. Ber.* 24: 63) over het voorkomen van *P. coenobita* bij Vaals en in Midden-Drente.

Het lijkt me goed te vermelden, dat ik een exemplaar van deze soort ving in Midden-Limburg te Montfort. Sparrenbossen zijn hier niet. Maar is fijnspar wel de enige voedselplant van de rups? In „Wir bestimmen Schmetterlinge” noemt KOCH behalve *Picea excelsa*, ook *Pinus silvestris*, *P. strobus*, *Abies alba* en *Larix decidua*.

A. W. P. MAASSEN, Montfort (Lb.).

Anthocaris cardamines L. (Lep., Pieridae). Ook deze mooie vlinder heeft m.i. enige aandacht nodig. Voor zover ik nog kon nagaan, was in ieder geval 1949 een jaar waarin hij zeer talrijk vloog. Daarna is dit geleidelijk minder geworden en de laatste 3 à 4 jaren is *cardamines* al een zeldzaamheid geworden. Zelfs in het mooie voorjaar van 1964 heb ik geen enkel exemplaar waargenomen.

Merkwaardigerwijs vloog de vlinder op 9 mei 1964 in de omgeving van Bentheim zeer talrijk!

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